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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,566	06/04/2001	Dmitri Loguinov	US 010269	4215

24737   7590   06/30/2005

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EXAMINER
NG, CHRISTINE Y

ART UNIT	PAPER NUMBER
2663	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/873,566	LOGUINOV, DMITRI
	Examiner	Art Unit	
	Christine Ng	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>02 March 2005</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-12 and 14-23</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-3, 6-8, 11, 12, 16, 17, 20 and 21</u> is/are rejected.

7) ☒ Claim(s) <u>4, 5, 9, 10, 14, 15, 18, 19, 22 and 23</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>04 June 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1-3, 16, 17, 20 and 21 are rejected under 35 U.S.C. 103(a) as being

unpatentable over U.S. Patent No. 5,768,533 to Ran in view of U.S. Patent No.

5,519,704 to Farinacci et al.

Referring to claim 1, Ran discloses in Figure 1 a method for transmitting a

multimedia bitstream between a server (sender 150) and a client (receiver 100) over a

packet network (channel 145), the method comprising the steps of:

(a) Packetizing (by video encoder 170) said multimedia bitstreams into a plurality

of packets (Figure 2, frame 200) comprised of layers (Figure 2, sub-sequences 210-

218) according to a predetermined scheme. Refer to Column 5, lines 13-35.

(b) Storing (by FIFO buffer 190) copies of the plurality of packets (Figure 2, frame

200). Refer to Column 7, lines 40-44.

(c) Transmitting (by channel 145) said stored packets (Figure 2, frame 200) in

sequence to said client (receiver 100). Refer to Column 4, lines 29-37 and Column 7,

lines 16-29 and lines 44-47.

(d) Sending (by request controller 125) retransmission requests to said server

(sender 150), wherein said retransmission requests are sent upon the detection of a lost packet. Refer to Column 7, line 67 to Column 8, line 5.

Ran does not disclose that the method includes storing copies of the plurality of packets *for a predetermined time period, which is updated by the client*.

Farinacci et al disclose that a sender node stores in queues copies of packets to destination receiver nodes, and retransmits the packet if an acknowledgement has not been received within a predetermined period of time. The predetermined period of time may be selected in response to a round trip time between the sender and receiver nodes, specifically, to an "expected delay time for transmission and response to the neighbor router 105...". Refer to Abstract; Column 2, lines 57-67; and Column 6, lines 26-40. Since the predetermined time depends on the round trip time between the sender and receiver, it is partly dependent, and updated, by the client (receiver node). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include storing copies of the plurality of packets *for a predetermined time period, which is updated by the client*; the motivation being so that packets will only be stored for a certain period of time in order to avoid buffer overflow. The client can also determine the predetermined time period since the rate at which it receives the packets affects how long packets should remain on the transmitting side.

Referring to claim 2, Ran discloses in Figure 1 that the method further comprises the step of retransmitting (by retransmission controller 185) copies of lost packets to said client system (receiver 100). Refer to Column 8, lines 34-43.

Referring to claim 3, Ran discloses in Figure 1 that the method further comprises the step of removing (by FIFO buffer 190) copies of the plurality of said packets (Figure 2, frame 200) if the lifetime (time in FIFO buffer 190) of one of said packets is greater than said predetermined time period (time waiting for an acknowledgement). "When FIFO buffer 190 overflows, the oldest data packets in FIFO buffer 190 are pushed out to make room for newly encoded data packets" (Column 7, lines 42-44). Therefore, if a packet is in the FIFO buffer when its acknowledgement arrives (time in FIFO buffer is greater than time needed to wait for an acknowledgement), it can be retransmitted and then removed from the FIFO buffer. Refer to Column 7, line 59 to Column 8, line 9 and Column 8, lines 34-41.

Referring to claim 16, Ran discloses in Figure 1 a server system (sender 150) for transmitting a multimedia file stored in said server to a client system (receiver 100), said client system (receiver 100) and said server system (sender 150) being connected to a packet network (channel 145), said server system (sender 150) comprising:

A packetizer (video encoder 170) for packetizing incoming multimedia bitstreams into a plurality of packets (Figure 2, frame 200) comprised of layers (Figure 2, sub-sequences) according to a predetermined scheme. Refer to Column 5, lines 13-35.

A packet buffer (FIFO buffer 190) operably coupled to said packetizer (video encoder 170) for storing copies of the plurality of packets (Figure 2, frame 200). Refer to Column 7, lines 40-44.

A packet transmitter (channel 145) operably coupled to the packet buffer (FIFO

190) for transmitting said stored packets in sequence to said client system (receiver

100). Refer to Column 4, lines 29-37 and Column 7, lines 16-29 and lines 44-47.

A retransmission processor (retransmission controller 185) operably coupled to

said packet buffer (FIFO buffer 190) and said packet transmitter (channel 145) for

retransmitting copies of lost packets to said client system (receiver 100). Refer to

Column 8, lines 34-43.

Ran does not specifically disclose that the packet buffer stores copies of the

plurality of packet *for a predetermined time period, which is determined by said client*

system. Refer to the rejection of claim 1.

Referring to claim 17, Ran discloses that the retransmission processor

(retransmission controller 185) removes copies of the plurality of said packets (Figure 2,

frame 200) if the lifetime (time in FIFO buffer 190) of one of said packets is greater than

said predetermined time period (time waiting for an acknowledgement). Refer to the

rejection of claim 3.

Referring to claim 20, refer to the rejections of claims 12 and 16.

Referring to claim 21, refer to the rejection of claim 17.

3.   Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent No. 5,768,533 to Ran in view of U.S. Patent No. 5,222,061 to Doshi et al.

Referring to claim 6, Ran discloses in Figure 1 a method for supporting the real-

time transmission and retransmission of a multimedia bitstream between a server

(sender 150) and a client (receiver 100), the method comprising the steps of:

(a) Receiving (by input buffer 160) said multimedia bitstream. Refer to Column 4,

lines 41-42.

(b) Transforming (by video encoder 170) said multimedia bitstream into a plurality

of packets (Figure 2, frame 200) having prefixes (sequence number field). Refer to

Column 5, lines 13-35 and Column 7, lines 16-29.

(d) Forwarding (by channel 145) the plurality of said packets (Figure 2, frame

200) from said server (sender 150) to said client (receiver 100).

(e) Receiving a message (by request controller 135) to retransmit a lost packet

from said client (receiver 100). Refer to Column 7, line 67 to Column 8, line 5.

(f) Transmitting (by retransmission controller 185) said packet to said client

(receiver 100). Refer to Column 8, lines 34-43.

Ran does not disclose step (c) adding said packet prefixes in sequence to a list

controlled by said server for a predetermined time period, which is updated by the client;

and part of step (e) searching said list for the prefix corresponding to said lost packet.

Doshi et al disclose in Figure 1 adding packet prefixes (sequence numbers) to a

list (Figures 5-7) controlled by a server (transmitter 100) for a predetermined time, which

is updated by the client (Figure 1, receiver 200). The packet prefixes are in the list only

until the receiver transmits a status control message indicating the sequence number of

the last data packet that the receiver passed to its upper control layer (SEQ_R) and the

sequence number of the last packet that the receiver received correctly (SEQ_MAX).

For example, if SEQ_R = 848, controller 120 erases from the list all sequence numbers

up to and including 848. When a packet is lost, the server (transmitter 100) searches

the list (Figures 5-7) for the prefix (sequence numbers 852 and 857) corresponding to

the lost packet, and retransmits the lost packet only if the list indicates that the packet

had been transmitted before the last data packet that was received correctly by the

receiver. The predetermined time period is updated by the client (Figure 1, receiver

200) since it is the one sending the status control messages. Refer to Column 4, lines

43-47 and Column 5, line 46 to Column 6, line 58. Therefore, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to include

step (c) adding said packet prefixes in sequence to a list controlled by said server for a

predetermined time period, which is updated by the client; and part of step (e) searching

said list for the prefix correspond to said lost packet, the motivation being in order to

maintain a list of the exact sequence of transmitted packets and avoid multiple

retransmissions of the same packet. Refer to Column 1, line 35 to Column 2, line 5.

Referring to claim 7, Ran discloses in Figure 1 that the method further comprises

the step of assembling (by video decoder 120) the plurality of said packets (Figure 2,

frame 200) into a continuous bitstream. Refer to Column 7, lines 63-65 and Column 9,

line 42 to Column 10, line 18.

Referring to claim 8, Ran does not disclose that the method further comprises the

step of determining whether one of said packets is lost based on said packet prefixes

received by said client.

Doshi et al disclose in Figures 5-7 the step of determining whether one of said

packets is lost based on said packet prefixes (sequence numbers) received by the client

(receiver 200) in a status control message. Refer to Column 5, line 46 to Column 6, line

58. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the method further comprises the step of determining whether one of said packet is lost based on said packet prefixes received by said client, the motivation being that the sequence number allows the transmitter to maintain a list of the exact sequence of the transmitted packets and avoid multiple retransmissions of the same packet. Refer to Column 1, line 35 to Column 2, line 5.

4.   Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,768,533 to Ran in view of U.S. Patent No. 5,222,061 to Doshi et al, and in further view of U.S. Patent No. 6,085,252 to Zhu et al.

Ran and Doshi et al do not disclose that the searched packet is transmitted to said client by way of a Real-Time Transport Protocol. ·

Zhu et al disclose that there is a growing need for carrying real-time multimedia traffic and the real-time transport protocol specifies a way for programs to manage real-time transmission. Refer to Column 1, lines 17-32. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the searched packet is transmitted to said client by way of a Real-Time Transport Protocol, the motivation being that real-time transmission allows computers to keep track of external processes that are constantly changing and allows users to communicate with each other with immediate responsiveness.

5.   Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,768,533 to Ran.

Ran discloses in Figure 1 a client system (receiver 100) for receiving a

multimedia file from a remote buffer (FIFO buffer 190) from a server system (sender

150), said client system (receiver 100) and said server system (sender 150) being

connected to a packet network (channel 145), said client system comprising:

A packet buffer (receiving buffer 130) operably coupled to store incoming packets

(Figure 2, frame 200) comprised of layers (Figure 2, sub-sequences 210-218) sent by

said server system (sender 150). Refer to Column 5, lines 13-35 and Column 7, lines

59-61.

A depacketizer (video decoder 120) for assembling said incoming packets

(Figure 2, frame 200) into a continuous bitstream. Refer to Column 7, lines 63-65 and

Column 9, line 42 to Column 10, line 18.

A packet processor (status buffer 115) operably coupled to said depacketizer

(video decoder 120) for detecting lost packets. Refer to Column 7, lines 65-67.

A retransmission manager (request controller 125) operably coupled to said

packet processor (status buffer 115) for sending retransmission requests to said server

system (sender 150) upon detection of said lost packets. Refer to Column 7, line 67 to

Column 8, line 20.

Means (status buffer 115 and video decoder 120) for computing a presentation

time for copies of said incoming packets in said remote buffer (FIFO buffer 190). Refer

to Column 9, lines 42-57.

Ran et al do not specifically disclose providing the presentation time to the server

system (sender 150).

However, a receiver may need to provide the presentation time to the server so

that the server knows that all frames segments of the video frame have been

successfully sent and are displayable. Refer to Column 9, lines 42-57. Therefore, it

would have been obvious to one of ordinary skill in the art at the time the invention was

made to include providing the presentation time to the server system (sender 150); the

motivation being so that the sender knows which video frames are displayable, thereby

providing additional indication that all frames segments of the video frame have been

successfully transmitted.

Allowable Subject Matter

6.   Claims 4, 5, 9, 10, 14, 15, 18, 19, 22 and 23 are objected to as being dependent

upon a rejected base claim, but would be allowable if rewritten in independent form

including all of the limitations of the base claim and any intervening claims.

Conclusion

7.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Christine Ng whose telephone number is (571) 272-

3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng (N)
June 17, 2005

RICKY NGO
PRIMARY EXAMINER

9/27/05